

WHAT IS CLAIMED IS:

1. A method of forming fine patterns comprising: covering a substrate having photoresist patterns thereon made of a photoresist composition which is sensitive to high energy light rays with wavelength of 200 nm or shorter or electron beam radiation, with an over-coating agent for forming fine patterns, applying heat treatment to cause thermal shrinkage of the over-coating agent so that the spacing between adjacent photoresist patterns is lessened by the resulting thermal shrinking action, and removing the over-coating agent substantially completely.
2. The method of forming fine patterns according to claim 1, wherein the over-coating agent contains a water-soluble polymer.
3. The method of forming fine patterns according to claim 2, wherein the water-soluble polymer is at least one member selected from the group consisting of alkylene glycolic polymers, cellulosic derivatives, vinyl polymers, acrylic polymers, urea polymers, epoxy polymers, melamine polymers and amide polymers.
4. The method of forming fine patterns according to claim 1, wherein the over-coating agent is an aqueous solution having a solids content of 3 - 50 mass%.
5. The method of forming fine patterns according to claim 1, wherein the heat treatment is performed at a temperature that does not cause thermal fluidizing of the photoresist patterns on the substrate.